

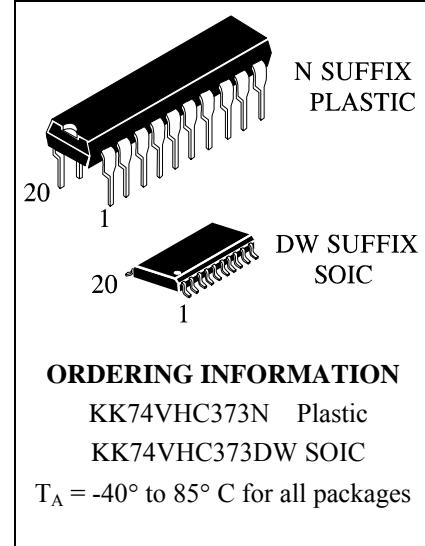
Octal d-type latch with three state outputs**KK74VHC373**

KK74VHC373 integrated circuits are designed for using in up-to-date high-performance computers, high-level electronic equipment for consumer application.

KK74VHC373 is identical in pinout to the IC series KK74HC373A, KK74HCT373A, KK74AC373A, KK74ACT373A.

Input voltage levels are compatible with standard C-MOS levels.

Output voltage levels are compatible with input levels of C-MOS, N-MOS and TTL ICs.

**ORDERING INFORMATION**

KK74VHC373N Plastic

KK74VHC373DW SOIC

$T_A = -40^\circ$ to 85° C for all packages

Features:

- Supply voltage 2.0 - 5.5 V.
- Low input current: 1.0 μ A; 0.1 μ A at $T = 25^\circ$ C.
- Output current 8 mA.
- Latchup current not less than 300 mA at $T = 85^\circ$ C.
- Tolerable value of static potential not less than 2000V as per human body model (HBM) and not less than 200V as per machine model (MM).

KK74VHC373 truth table

Input		Output
\bar{G}	A	Y
L	L	L
L	H	H
H	X	Z

Note –

H - high voltage level;
 L - low voltage level;
 X - any voltage level (low or high);
 Z - output in third state

Pins description in KK74VHC373

<i>Pinout</i>	Pin No.	Symbol	Description
\bar{OE}	01	\bar{OE}	Input OUTPUT ENABLE
Q0	02	Q0	Data output
D0	03	D0	Data input
D1	04	D1	Data input
Q1	05	Q1	Data output
Q2	06	Q2	Data output
D2	07	D2	Data input
D3	08	D3	Data input
Q3	09	Q3	Data output
GND	10	GND	Common output
	20	V_{CC}	Recording enable input
	19	Q7	Data output
	18	D7	Data input
	17	D6	Data input
	16	Q6	Data output
	15	Q5	Data output
	14	D5	Data input
	13	D4	Data input
	12	Q4	Data output
	11	LE	Data input
			Supply output from voltage source

Absolute maximum conditions*

Parameter, unit	Symbol	Value	
		min	max
Supply voltage, V	V _{CC}	-0.5	7.0
Input voltage, V	V _{in}	-0.5	7.0
Output voltage, V	V _{out}	-0.5	V _{CC} +0.5V
Input diode current, mA	I _{ik}	—	-20
Current of common output and supply output, mA	I _{cc}	—	± 75
Output current, mA	I _{out}	—	± 25
Output diode current, mA	I _{ok}	—	± 20
Dissipated power, mW	P _d	—	180

*Under absolute maximum conditions operation of microcircuit is not guaranteed. Operation is guaranteed under maximum conditions

Maximum conditions

Parameter, unit	Symbol	Value	
		min	max
Supply voltage, V	V _{CC}	2.0	5.5
Input voltage, V	V _{in}	0	V _{CC}
Output voltage, V	V _{out}	0	V _{CC}
Output current, mA	I _{out}	—	± 8.0
Input rise and fall time, ns/V at V _{CC} = (3.3 ± 0.3) V at V _{CC} = (5.0 ± 0.5) V	t _{LH} , t _{HL}	0	100 20

DC electrical characteristics

Symbol	Parameter	Test conditions	V _{CC} , V	Value				Unit	
				25 °C		-40 to 85 °C			
				min	max	min	max		
V _{IH}	High input voltage	-	2.0	1.5	-	1.5	-	V	
			3.0-5.5	0.7V _{CC}	-	0.7V _{CC}	-		
V _{IL}	Low input voltage	-	2.0	-	0.5	-	0.5		
			3.0-5.5	-	0.3V _{CC}	-	0.3V _{CC}		
V _{OH}	High output voltage	V _I = V _{IH} or V _{IL} I _O = -50 μA	2.0	1.92	-	1.9	-		
			3.0	2.92	-	2.9	-		
			4.5	4.42	-	4.4	-		
			5.5	5.52	-	5.4	-		
		V _I = V _{IH} or V _{IL} ; I _O = -4 mA	3.0	2.58	-	2.48	-		
			4.5	3.94	-	3.80	-		
		V _I = V _{IH} or V _{IL} ; I _O = -8 mA	2.0	-	0.09	-	0.1		
V _{OL}	Low output voltage		3.0	-	0.09	-	0.1		
			4.5	-	0.09	-	0.1		
			5.5	-	0.09	-	0.1		
	V _I = V _{IH} or V _{IL} I _O = 4 mA	3.0	-	0.36	-	0.44			
		4.5	-	0.36	-	0.44			
I _{OZ}	Output current in "off" state	V _I = V _{IH} or V _{IL} V _O = V _{CC} or 0V	5.5	-	±0.25	-	±2.5	uA	
I _I	Input current	V _I = 5.5V or 0V	0 - 5.5	-	±0.1	-	±1.0		
I _{CC}	Consumption current	V _I = V _{CC} or 0V	5.5	-	4.0	-	40.0		

Noise characteristics (C_L = 50 pF)

Symbol	Parameter	V _{CC} , V	Value		Unit
			min	max	
V _{OLP}	Positive noise of low output voltage	5.0	-	0.9	V
V _{OLV}	Negative noise of low output voltage	5.0	-0.9	-	
V _{IHD}	Input dynamic high voltage	5.0	3.5	-	
V _{ILD}	Input dynamic low voltage	5.0	-	1.5	

AC electrical characteristics (t_{LH} = t_{HL} = 3.0 ns, R_L = 1 kOhm)

Symbol	Parameter	Test conditions	V _{CC} , V	C _L , pF	Value				Unit	
					25°C		-40°C to 85°C			
					min	max	min	max		
t _{PHL} , t _{PLH}	Popagation delay time when switching «on», «off» from input LE to output Q	Fig. 1	3.3 ± 0.3	15	—	11.0	—	13.0	ns	
				50	—	14.5	—	16.5		
			5.0 ± 0.5	15	—	7.2	—	8.5		
				50	—	9.2	—	10.5		
	From input D to output Q		3.3 ± 0.3	15	—	11.4	—	13.5		
				50	—	14.9	—	17.0		
			5.0 ± 0.5	15	—	7.2	—	8.5		
				50	—	9.2	—	10.5		
t _{PHZ} , t _{PLZ}	Propagation delay time under transition from high, low level into «off» state	Fig.2	3.3 ± 0.3	50	—	13.2	—	15.0		
			5.0 ± 0.5	50	—	9.2	—	10.5		
t _{PZH} , t _{PZL}	Propagation delay time under transition from «off» state into high, low level	Fig.2	3.3 ± 0.3	15	—	11.4	—	13.5		
				50	—	14.9	—	17.0		
			5.0 ± 0.5	15	—	8.1	—	9.5		
				50	—	10.1	—	11.5		
t _{SU}	Time of setting signal D relativey to LE	Fig.3	3.3 ± 0.3	15	4.0	—	4.0	—		
				50	4.0	—	4.0	—		
			5.0 ± 0.5	15	4.0	—	4.0	—		
				50	4.0	—	4.0	—		
t _H	Retention time, D signal to LE	Fig.3	3.3 ± 0.3	15	1.0	—	1.0	—		
				50	1.0	—	1.0	—		
			5.0 ± 0.5	15	1.0	—	1.0	—		
				50	1.0	—	1.0	—		
t _W	Pulse duration of LE signal	Fig.3	3.3 ± 0.3	15	5.0	—	5.0	—		
				50	5.0	—	5.0	—		
			5.0 ± 0.5	15	5.0	—	5.0	—		
				50	5.0	—	5.0	—		
t _{OSLH} , t _{OSHL}	Propagation delays difference between outputs	—	3.3 ± 0.3	50	—	1.5	—	1.5		
			5.5 ± 0.5	50	—	1.0	—	1.0		

Capacitance characteristics

Symbol	Parameter	Test conditions	V _{CC} , V	Value		Unit	
				25 °C			
				min	max		
C _I	Input capacity	-	5.0		10	pF	
C _O	Output capacity	-	5.0		12	pF	
C _{PD}	Dynamic capacity	V _I = 0 V or V _{CC}	5.0		54	pF	

- Time diagram of input and output pulses

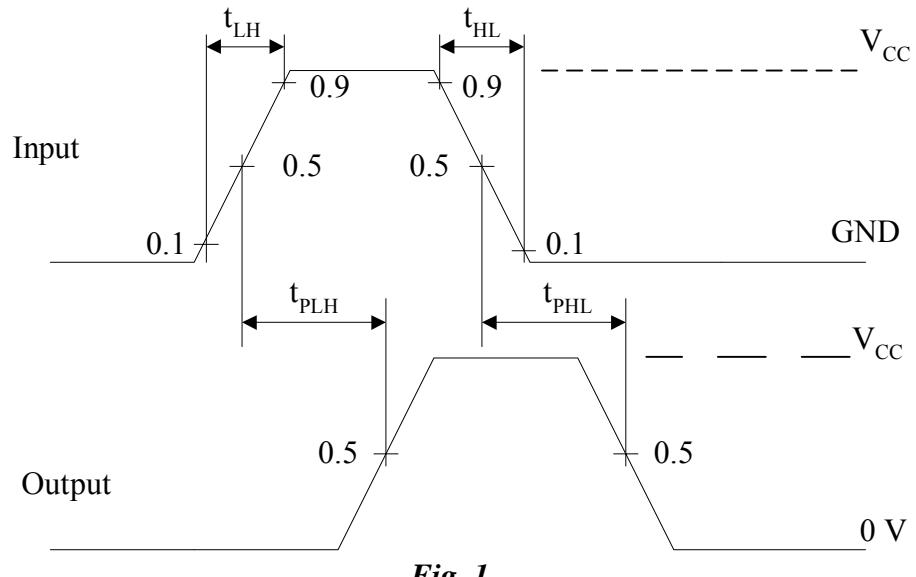


Fig. 1

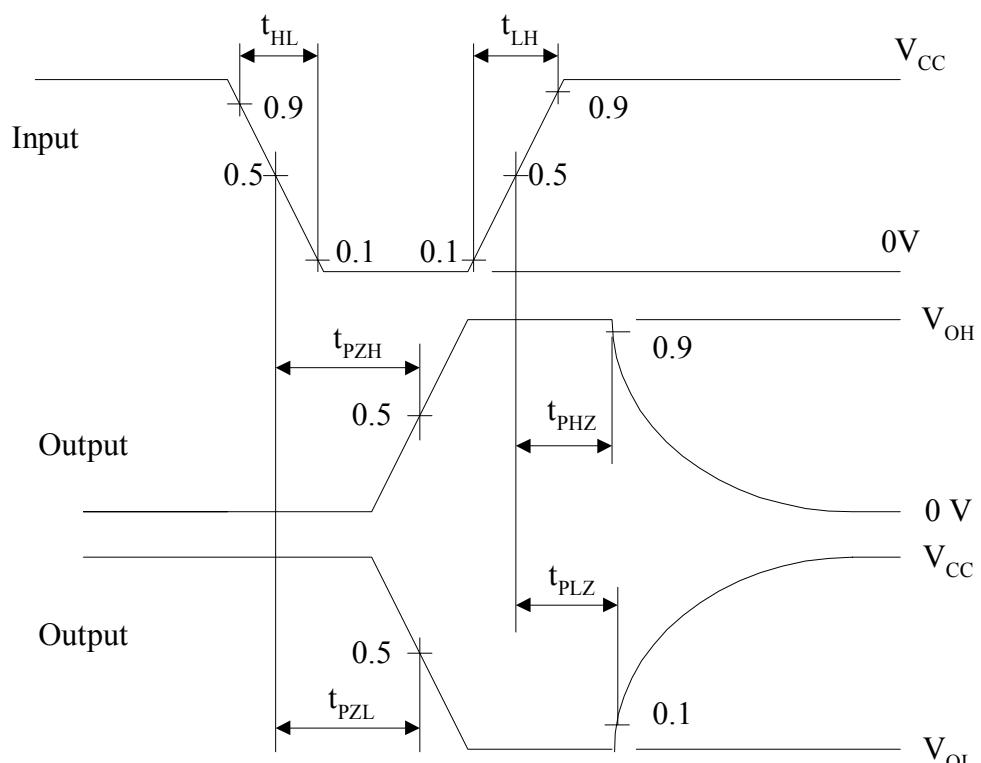
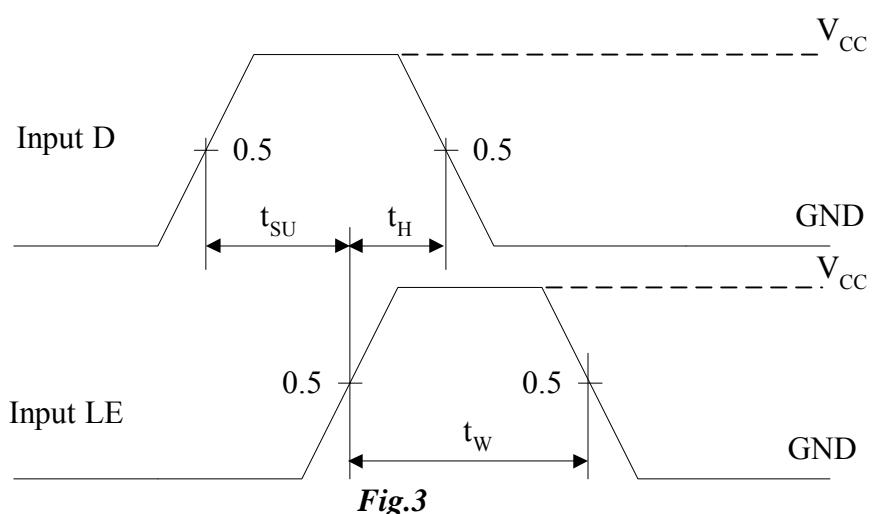
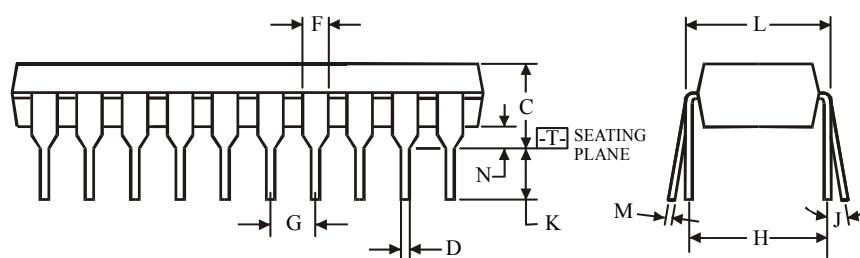
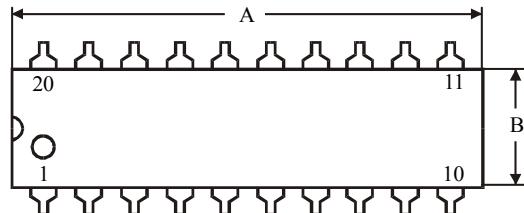


Fig.2

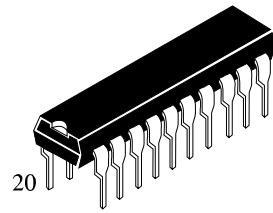
Time diagram of input pulses*Fig.3*

**N SUFFIX PLASTIC DIP
(MS - 001AD)**

NOTES:

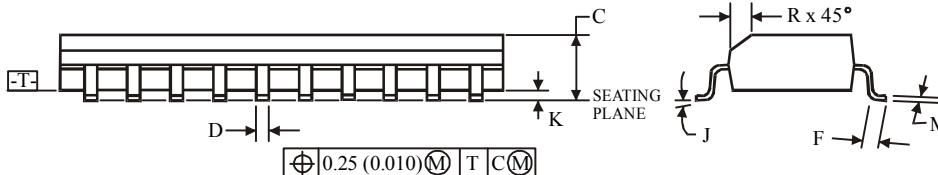
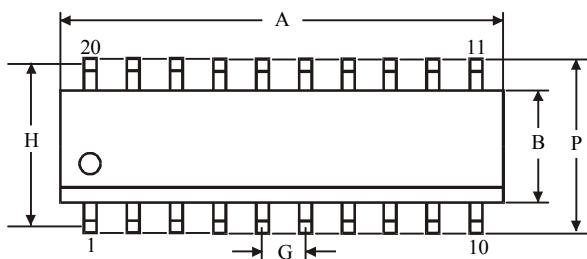
$$\oplus 0.25 (0.010) \text{ M T}$$

1. Dimensions "A", "B" do not include mold flash or protrusions.

Maximum mold flash or protrusions 0.25 mm (0.010) per side.



	Dimension, mm	
Symbol	MIN	MAX
A	24.89	26.92
B	6.1	7.11
C		5.33
D	0.36	0.56
F	1.14	1.78
G		2.54
H		7.62
J	0°	10°
K	2.92	3.81
L	7.62	8.26
M	0.2	0.36
N	0.38	

**D SUFFIX SOIC
(MS - 013AC)**


	Dimension, mm	
Symbol	MIN	MAX
A	12.6	13
B	7.4	7.6
C	2.35	2.65
D	0.33	0.51
F	0.4	1.27
G		1.27
H		9.53
J	0°	8°
K	0.1	0.3
M	0.23	0.32
P	10	10.65
R	0.25	0.75

NOTES:

1. Dimensions A and B do not include mold flash or protrusion.

2. Maximum mold flash or protrusion 0.15 mm (0.006) per side for A; for B - 0.25 mm (0.010) per side.